

HORTICULTURE

for the home gardener

County of Los Angeles Department of Arboreta and Botanic Gardens

INSECTICIDES for Ornamentals and Vegetables

Successful home landscaping and vegetable gardening are dependent on proper pest controls. Due to increasing restrictions on persistent wide spectrum insecticides, homeowners are faced with new choices to make from the array of products that control insect pests.

Effective and safe insect control depends on four factors: correct identification of pest, selection of proper control methods, a determination if the use of a chemical is absolutely needed, and careful attention to all instructions and safety precautions on pesticide labels.

Correct identification of all but the most common insect pests requires a basic understanding of insect body structure, life stages, and characteristic damage to host plants. Unfamiliar insect pests can be identified using non-technical descriptions found in horticulture and gardening books. The Los Angeles County Agricultural Commissioner has entomologists specializing in insect pests.

CULTURAL CONTROL methods reduce pest damage through careful plant selection, rotation of crops to avoid pest buildup, and maintaining plant health and vigor by good gardening practices. Nurseries and garden centers offer a wide variety of landscaping trees, shrubs, and groundcovers which are remarkably pest free in Southern California. Sanitary procedures in the garden, such as weed removal, garden cultivation, and removal of plant debris for composting or disposal can reduce pest damage substantially.

MECHANICAL CONTROL methods involve the physical removal of pests, or barriers which reduce insect movement or damage. Handpicking of large caterpillars such as Tomato Hornworm can be effective for small areas. A forceful spray of water is effective in removing and discouraging many insects and particularly spider mites. A glue-like product applied in a band around woody stems is useful in stopping the movement of ants and associated aphids and scale insects. Your cabbage related crops can be grown with almost no insecticides by covering them with nylon net to keep the white cabbage butterfly off them. Ninety percent of garden pests come in by air. To control earwigs leave damp, rolled up newspapers in the garden a few days then collect and burn or seal in a plastic bag and throw in garbage can. Weevils and slugs are slow moving animals that appreciate having a shingle to hide under. Collect them twice a week and destroy them.

BIOLOGICAL CONTROL methods offer a safe, effective, and long term approach to keeping insect pests under control. Natural insect predators, parasites, and diseases obtain highly specific results -- that is, the target pest is controlled without injury to beneficial insects or wildlife. Mass collection of lady beetles and praying mantis has made these insect predators available to the homeowner. Unfortunately, they don't stay in your yard, they begin to disperse immediately. An effective biological control is a product containing dried spores of *Bacillus thuringiensis*. Mixed with water and applied to foliage this bacteria causes certain types of chewing caterpillars and worms to stop feeding and die.

CHEMICAL CONTROL measures are best used as a last resort when other methods prove ineffective. There are disadvantages to the use of pesticides. These include possible injury to beneficial insects, health hazards to user, and accumulation of persistent insecticides in the environment. Such potential hazards require informed and cautious use of chemical insecticides.

Many spray companies recommend preventive sprays. This is a bad practice which wastes spray, time and money while needlessly contaminating the environment. Don't spray unless you know what you are spraying for. For instance, if every July your St. Augustine lawn is wiped out by chinch bugs, it is perfectly reasonable to spray in June. Know what you are spraying for.

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Listed below are eleven insecticides recommended for control of garden pests. After each pest are listed the numbers of insecticides that will give effective control. Insecticides are listed in order of increasing toxicity to warm blooded animals. The use of brand names is for convenience only and constitutes no endorsement. Chemical names are listed within parentheses, and may be found on insecticide labels under "active ingredients." This is only a summary of the insecticides readily available. Many others are available as well as formulations of the following:

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| 1. Dipel, Thuricide (<i>Bacillus thuringiensis</i>) | 6. Orthene (acephate) |
| 2. Petroleum oils | 7. Lindane |
| 3. Metaldehyde | 8. Kelthane (dicofol) |
| 4. Malathion | 9. Sevin (carbaryl) |
| 5. Apon | 10. Diazinon |

Ants	4,9,10	Hornworms	1,9
Aphids	4,6,10	Lawn Moths	10
Beetles	7,9,10	Leaf Hoppers	4,6,9,10
Borers	7	Leaf Miners	6,7,10
Cabbage Worm	1,4,9,10	Mealybugs	2,4,6,10
Caterpillars	1,5,9	Mosquitoes	4
Chinch Bug	5,10	Oak Moths	1,9,10
Codling Moths	1,4,9,10	Seales (Crawler Stage)	2,6,9,10
Cutworms	6,9,10	Slugs & Snails	3
Dried Fruit Beetles	4,10	Sowbugs	10
Dichondra Flea Beetles	9,10	Spider Mites	2,4,6,8,10
Earwigs	9,10	Spirite Bugs	4,6,9
Elm Leaf Beetles	6,9	Termites (in trees)	7
Flies	4,10	Thrips	4,6,10
Grasshoppers	6,9	Weevils	4,6,10
Grubs	10	Wireworms	10

SAFETY

Before opening any insecticide, **READ ALL LABEL DIRECTIONS AND SAFETY PRECAUTIONS** and follow them carefully for safe and effective pest control. Signal words on the label provide guidelines to determine the chemical's toxicity to humans. **"DANGER"** or **"POISON"** with the skull and crossbones symbol means highly toxic. **"WARNING"** means moderately toxic and **"CAUTION"** indicates slightly toxic. All insecticides are a potential hazard to the user and should be stored and disposed of in accordance with label instructions.

IT IS IMPORTANT TO DISTINGUISH BETWEEN INSECTICIDES FOR USE ON ORNAMENTALS ONLY AND THOSE FOR USE ON BOTH VEGETABLES AND ORNAMENTALS. This information is given on the label. Those for use on ornamentals only, particularly the systemics, could result in possibly dangerous residues if sprayed on vegetables.

PHYTOTOXICITY (leaf damage) - The active ingredient rarely causes leaf damage. It is most often caused by the inert ingredients, usually a petroleum solvent that the active material is dissolved in. If leaf damage is noticed, use a dust in place of a spray.

EQUIPMENT TO APPLY - Once you get the right chemical it must be applied correctly to get the desired effect. If the amount of the chemical is important, but not the amount of water, then a hose end sprayer or syphon type device attached at the faucet can be used. If the amount of water is critical, as with most herbicides, a pump type pressure sprayer should be used.

The hose end or syphon device is good for spraying small trees and lawns. Don't drink water from the hose if you ever use a syphon device attached at the faucet. The pressure sprayer is necessary for spot treatments. Buy two. Use the 1 or 2 gallon size for insecticides. Use the 3 to 4 gallon size for herbicides. Don't mix usage as you may damage your plants with the residue of a previous spray. Some chemicals and all fertilizers are corrosive. Clean the sprayer thoroughly with water and spray clean water through both the hose and nozzle of sprayer after use, then store upside down with the spray valve locked in the open position.